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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/670,154	09/26/2000	Gengying Gao	75292/06037	4842

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Breton A Bocchieri
Arter & Hadden LLP
Citicorp Plaza
725 South Figueroa Street Suite 3400
Los Angeles, CA 90017-5434

EXAMINER

NGUYEN, TRUNG Q

ART UNIT

PAPER NUMBER

2858

DATE MAILED: 12/07/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

09/670,154

Applicant(s)

GAO ET AL.

Examiner

Trung Q Nguyen

Art Unit

2858

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a) because they fail to show "bandgap of the substrate" and "layers of the device" as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Correction is required.
2. This application has been filed with informal drawings which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
4. Claims 3-8, 13 and 17 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claim 3, it is not understood what is meant by "bandgap of the substrate"?

Claims 4-8, 13 and 17 are rejected for being dependent on rejected claim 3.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Henley (U.S. 5,432,461), as best as the examiner is able to ascertain.

Regarding claims 1-2, Henley discloses a method of testing the ESD of an IC device (Fig. 1) comprising a laser beam (1) wherein laser beam (1) is used to probe the IC device (2, 9, 13), a system for monitoring the amount of light reflected from the device (3 and 4).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 3-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henley (U.S. 5,432,461) in view of Livengood (U.S. 6,020,746), as best as the examiner is able to ascertain.

Regarding claim 3, Henley discloses all elements that are in claim 1, which claim 3 is depending on, Henley fails to disclose the energy of the laser beam corresponds substantially to the bandgap of the substrate of the device. However, Livengood discloses a different kind of laser beam source (421) which the energy of the laser beam corresponds substantially to the bandgap (a part of 403, Fig. 4A-4B) of the substrate of the device (Fig. 4B).

Therefore, at the time of the subject invention, it would have been obvious for a person of ordinary skill in the art to use the laser beam source (421) as taught by Livengood for a laser beam source (18) of Henley for example, because of their focuses and their wavelength is ideally related to the bandgap energy of the substrate material.

Regarding claim 4, Livengood discloses silicon substrate (401, Fig. 4A) and a laser beam source (421), which is inherent to have a range of energy of 1.1eV because this is a standard range for any laser beam.

Regarding claims 5-7, Livengood discloses the diffusion of the IC device (X, Fig. 4A) are probed with the laser beam, wherein, a diffusion of O/O cells (403 and 405) are probed with the laser beam to determine how much light is absorbed and reflected by the diffusions (column 6, lines 6-43).

Regarding claim 8, Livengood discloses several samples (403, 411 and 413) are taken of each probed location and the results averaged (Fig. 4B-4C).

Regarding claims 9-12 and 17-20, Henley discloses an image detector system or mode-locked laser (3, 4 and 42) wherein this system can be positioned automatically or by user (Figs. 4-5) for detecting the continuous wave laser from beam source (1) in order to facilitate the positioning of the beam and provides an image of the IC device through image processor (42).

Regarding claims 13-16, it is inherent to provide a power supply for any electrical device in order to operate. Henley also discloses the testing is performed on the device in either package or prepackage form (Fig. 7), wherein the substrate has difference layers (column 7, lines 55-62).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. As already mentioned, there are a number of prior art references dealing with the use of method of testing the electrostatic discharge performance of an IC device; only a representative sample is cited herein.

Woodard (U.S. 4,829,243) discloses an electron beam testing of electronic components.

Tofo-Lira (U.S. 5,982,190) discloses a method to determine pixel condition on flat panel displays using an electron beam.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trung Nguyen whose telephone number is 703-305-4925. The examiner can normally be reached on Monday through Friday, 8:30AM – 5:00PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Methajic can be reached on 703-308-1436.

TN
November 30, 2001



SAFET METJAHIC
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800